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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09 766,835      | 01 23 2001  | Rudolf Wagner        | 622 43633C3         | 1560             |

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CROWELL & MORING  
1001 PENNSYLVANIA AVENUE  
WASHINGTON, DC 20004

EXAMINER

VINH, LAN

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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1765

DATE MAILED: 09 09 2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/766,835

Applicant(s)

WAGNER ET AL

Examiner

Lan Vinh

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 45-99 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 45-99 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other \_\_\_\_\_

## DETAILED ACTION

### *Claim Objections*

1. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claim 44 been renumbered 45

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 45-55, 59-62 are rejected under 35 U.S.C. 102(e) as being anticipated by Sundar (US 6,224,312).

Sundar discloses a method for processing wafers comprises the steps of:

loading wafers/workpieces into a processing system comprising two stations 100 and 106 receiving wafers from cassettes 109 containing batch of wafers, the system has a mapping system to index the number of wafers in each cassette (col 4, lines 35-

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42, col 5, lines 1-5), which reads on loading the workpieces into a treatment facility comprising at least two stations operating each on workpiece batches grouped as respective station batches and being different with respect to number of workpieces

handling/transporting the wafers cassettes to and from the stations using a wafer cassette turntable 111 (col 4, lines 59-62, fig.8, fig. 13), which reads on transporting the workpieces to and from the two stations grouped as a transport batch

treating the wafers/workpieces in the processing chambers/stations 106 that is pumped down to vacuum (col 8, lines 20-29)

Regarding claims 46, 47, Sundar discloses using a system controller programmed to move the wafers through the transfer chamber (col 2, lines 40-42)

Regarding claims 48, 49, Sundar discloses using a mapping system to index the number of wafers in each cassette 109 (col 5, lines 1-4), which reads on controlling the size of the station batch using a programmable process controller unit

Regarding claims 50-51, Sundar discloses using a mapping sensor to verify the number of wafers in the cassette before positioning the wafer in the chamber 112/transport chamber (col 5, lines 8-19)

Regarding claim 52-55, Sundar discloses that the optimization of wafer movement using the robot/controller unit resulted in several optimal paths (col 11, lines 42-45, fig. 26), which reads on the step of controlling geometric arrangement of a station batch of at least one stations using a process controller unit.

Regarding claims 59-61, fig. 8 of Sundar shows the cassettes 109 containing the wafers in the station, the cassette can be moved by cassette turntable 111, which reads

on the step of providing the workpiece in at least one station of the treatment facility within a mobile magazine.

Regarding claim 62, Sundar discloses providing vacuum isolation of the environment within the chambers/stations in the processing system (col 8, lines 26-30)

4. Claims 63-73, 77-81 are rejected under 35 U.S.C. 102(e) as being anticipated by Sundar (US 6,224,312).

Sundar discloses a method for processing wafers comprises the steps of:

loading wafers/workpieces into a processing system comprising two processing chambers/vacuum stations 100 and 106 (col 4, lines 35-42 )

loading and unloading wafers from the chambers/stations using a cassette containing wafers and the cassette turntable (col 4, lines 42-67), which reads on loading and unloading the at least two stations with workpieces grouped as a transport batch

using the wafer mapping sensor to verify the number of wafers and orientation of wafer in the cassette/transport batch before positioning the wafers in the loadlock chamber for processing (col 5, lines 8-11)

handling/transporting the wafers cassettes to and from the stations using a wafer cassette turntable 111 (col 4, lines 59-62, fig.8, fig. 13), which reads on transporting the workpieces to and from the two stations grouped as a transport batch

treating the wafers/workpieces in the processing chambers/stations 106 that is pumped down to vacuum (col 8, lines 20-29)

Regarding claim 64, Sundar discloses using a system controller programmed to move wafers through the transfer chamber following time optimal paths (see abstract)

Regarding claims 65-67, Sundar discloses using a mapping system to index the number of wafers in each cassette 109 (col 5, lines 1-4), which reads on controlling the size of the station batch using a programmable process controller unit

Regarding claims 68-69, Sundar discloses using a mapping sensor to verify the number of wafers in the cassette before positioning the wafer in the chamber 112/transport chamber (col 5, lines 8-19)

Regarding claims 70-73, Sundar discloses that the optimization of wafer movement using the robot/controller unit resulted in several optimal paths (col 11, lines 42-45, fig. 26), which reads on the step of controlling geometric arrangement of a station batch of at least one stations using a process controller unit.

Regarding claims 77-80, fig. 8 of Sundar shows the cassettes 109 containing the wafers in the station, the cassette can be moved by cassette turntable 111, which reads on the step of providing the workpiece in at least one station of the treatment facility within a mobile magazine.

Regarding claim 81, Sundar discloses providing vacuum isolation of the environment within the chambers/stations in the processing system (col 8, lines 26-30)

5. Claims 82-92, 96-99 are rejected under 35 U.S.C. 102(e) as being anticipated by Sundar (US 6,224,312).

Sundar discloses a method for processing wafers comprises the steps of:

transferring the cassettes 109 containing wafers to two vacuum stations 106 within a processing system 100 (fig. 13), which reads on vacuum treating the wafers/workpiece grouped as respective stations batches within the least two stations of a treatment facility

using a mapping sensor to verify the number of wafers in the cassette before positioning the wafer in the chamber 112/transport chamber (col 5, lines 8-19), which reads on controlling the station batches , controlling the CVD process operation in the process chambers/stations 106

Regarding claim 83, Sundar discloses using a system controller programmed to move wafers through the transfer chamber following time optimal paths (see abstract)

Regarding claims 84-85, Sundar discloses using a mapping system to index the number of wafers in each cassette 109 (col 5, lines 1-4), which reads on controlling the size of the station batch using a programmable process controller unit

Regarding claims 86-92, Sundar discloses that the optimization of wafer movement using the robot/controller unit resulted in several optimal paths (col 11, lines 42-45, fig. 26), which reads on the step of controlling geometric arrangement of a station batch of at least one stations using a process controller unit.

Regarding claims 96-98, fig. 8 of Sundar shows the cassettes 109 containing the wafers in the station, the cassette can be moved by cassette turntable 111, which reads on the step of providing the workpiece in at least one station of the treatment facility within a mobile magazine.

Regarding claim 99, Sundar discloses providing vacuum isolation of the environment within the chambers/stations in the processing system (col 8, lines 26-30)

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 56-58, 74-76, 93-95 rejected under 35 U.S.C. 103(a) as being unpatentable over Sundar (US 6,224,312) in view of Edward et al (US 5,944,857)

Sundar's method has been described above. Unlike the instant claimed inventions as per claims 56-58, 74-76, 93-95, Sundar fails to disclose selecting the number of workpiece of the transport batches not to exceed/to be an integer fraction of the number of workpiece of a station batch of a transport destination station.

However, Edward discloses a method for loading and unloading wafers from high vacuum chamber comprises the step of disclose selecting the number of workpiece of the loading station/transport batches of 13 or 25 wafers (col 10, lines 31-35), which reads on selecting the number of workpiece of the transport batches not to exceed/to be an integer fraction of the number of workpiece of a station batch of a transport destination station.

Hence, one skilled in the art would have found it obvious to modify Sundar's method by selecting the number of workpiece of the loading station/transport batches of 13 or



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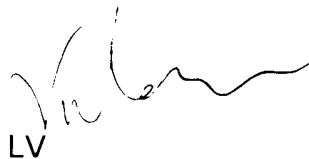
25 wafers as per Edward because Edward states that 13 or 25 wafers is a full standard batch of wafers I position at the loading station (col 10, lines 33-35)

### ***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lan Vinh whose telephone number is 703 305-6302. The examiner can normally be reached on M-F 8:30-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 703 305-2667. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872-9310 for regular communications and 703 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308-0661.



LV

August 13, 2003